UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,087	03/30/2004	Akitaka Makino	648.43120CX1	3009

20457 7590 10/24/2006

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER	
MOORE, KARLA A	
ART UNIT	**PAPER NUMBER**
1763	

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/812,087
Filing Date: March 30, 2004
Appellant(s): MAKINO ET AL.

MAILED
OCT 24 2006
GROUP 1700

***

For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7 August 2006 appealing from the Office action mailed 3 January 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

As expressed in Applicant's appeal brief, another appeal is being filed in conjunction with Application Serial No. 10/812,086. Both this appeal and the presently filed appeal are continuations for Application Serial No. 10/656,334.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(8) Evidence Relied Upon

5,641,375	HAO	6-1997
6,889,627	NITESCU et al.	5-2005

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 7-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,889,627 to Hao in view of U.S. Patent No. 5,641,375 to Nitescu et al.

2. Hao discloses a vacuum processing apparatus substantially as claimed and comprising: a vacuum container (Figures 3A and 3B, 104) in which an inside thereof is evacuated and in which a wafer is processed using plasma therein (column 4, rows 6-10); an inner chamber (102) disposed inside the vacuum container and having an inner space in which a processing gas is supplied, the inner chamber having an axisymmetric structure; a side wall delimiting a part of the inner chamber and having an opening (opening in liner aperture plate, 110) disposed therein through which the wafer to be supported on the wafer table is passed; a gate (opening in process chamber, 104) so as to enable communication with the opening in the side wall of the inner chamber so as to enable transfer of the wafer from outside of the vacuum container through the opening in the sidewall; and a valve (110) disposed between the opening in the side wall and the gate, the valve being movable with respect to the outside of the side wall of the inner chamber so as to open and close the opening and for sealing the opening in an airtight manner, a portion of the valve having a shape which does not interfere with the axisymetric structure of the inner chamber.

3. However, Hao fails to explicitly teach the inner chamber is detachable disposed with respect to the vacuum container so as to enable lifting up of the inner chamber from the vacuum chamber.

4. Nitescu et al. teach the use of a flexible, removable shield (inner chamber) for a plasma chamber for the purpose of protecting the inner walls of a plasma processing reactor (column 2, rows 10-18). The liner is liftable through the top of the reactor when the lid is removed so that the liner can be replaced (column 3, rows 25-31 and column 6, rows 28-34, 57-63).

5. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have the inner chamber detachably disposed with respect to the vacuum container so as to enable lifting up of the inner chamber from the vacuum chamber in Hao in order to replace the protecting liner as taught by Nitescu et al.

6. Hao further fails to explicitly teach the inner space comprises a wafer table for supporting the wafer.

7. Nitescu et al. teach the use of pedestal in a processing inner space for the purpose of holding a wafer during processing (column 3, rows 49-50).

8. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a pedestal in the processing inner space in Hao in order to hold the wafer during processing as taught by Nitescu et al.

9. With respect to claim 8, a portion of the valve has a shape so that when the valve closes the opening in the sidewall unevenness of an inner surface of the inner chamber is reduced (see Figure where the valve, 144 is curved).

10. With respect to claims 9 and 10, the combination of Hao and Nitescu teaches a detachable and liftable inner chamber. Hao further discloses a driver (Figures 4A-E, actuator, 130; column 6, rows 28-29) for enabling movement of the valve.

11. With respect to claims 11-14, the valve is movable in both vertical and horizontal directions (column 6, rows 28-29).

12. With respect to claims 15 and 17, the apparatus further comprises another valve (514) disposed outside of the gate, the another valve being movable so as to open and close the gate and enable sealing of the gate in an airtight manner.

13. With respect to claims 16 and 18, the another valve when closing the gate enable sealing of the gate in an airtight manner while the inner chamber is removed from the vacuum chamber. As noted above, the another valve closes in an airtight manner. If desired (i.e. if an intended processing method called for the step), the inner chamber could be removed while the another valve remained sealed. Examiner notes that the courts have ruled that A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

14. With respect to claim 19, the valve has a shape so that a portion thereof is insertable within the opening of the inner chamber for airtightly sealing the opening and to reduce unevenness on an inner surface of the inner chamber reduced (see Figure where the valve, 144 is curved).

(10) Response to Arguments

1. Applicant argues that neither the "liner" disclosed in Hao nor the "shield" disclosed in Nitescu are an "inner chamber" as claimed. However, the "liner" disclosed in Hao and the "shield" disclosed in Nitescu are structurally and functionally the same as "inner chamber" 509 of Applicant's disclosure. They are cylindrical structures provided at an inner circumference of an outer chamber portion that function to protect the outer chamber portion. Applicant's remarks/arguments do not describe a structural or functional difference of the claimed "inner chamber" nor was the Examiner able to uncover a difference after reviewing and comparing the Applicant's disclosure with the prior art. The mere fact that Applicant has chosen to give the structure a name different than the relied upon prior art is not enough to distinguish the structure over the prior art.

2. With respect to Applicant's arguments regarding the failure of Hao to disclose a wafer table as claimed, Examiner points out that it was recognized in the office action that Hao fails to explicitly disclose the presence of this undisputedly, well-known structure and therefore the reference was not relied upon for teaching this feature. Nitescu et al. discloses the feature and was relied upon for the teaching, not Hao.

3. Applicant also argues that Hao fails to disclose "the valve being movable with respect to the outside of the sidewall of the inner chamber so as to open and close the opening and for sealing the opening in an airtight manner". Examiner maintains the position that the valve (110) opens and closes the opening, is movable with respect to the outside wall of the inner chamber *and* that when the valve closes the opening, an airtight seal is formed for the opening via the valve mechanism which also includes another closing portion (108) which seals the outside chamber in an airtight/vacuum manner.

The entire chamber of Hao is held at a vacuum state (see column 3, rows 33-41), thus the claimed opening is necessarily maintained in an airtight manner when the valves 108 and 110 are in a closed position, as claimed. It is noted that the valves/closing portions are necessarily opened and closed together, as they are connected. The claimed opening is sealed in an airtight manner, in that, the valve occupies the opening and no air is allowed to pass through the opening. See Figure 3B. Examiner points out that Applicant's claims do not specify that an airtight seal be created by a sealing surface of the inner chamber and the valve, which is the feature what Applicant appears to be arguing.

4. Examiner does not agree that a teaching of a valve having a clearance to move in and out of an opening equates to a teaching of the apparatus failing to comprise a valve for sealing the opening in an airtight manner.

5. It is noted that Applicant's conclusions based on what the Examiner recognizes as differences between the inner chamber structure of the claimed invention, the liner of Hao and the shield of Nitescu are absolutely incorrect. The Examiner sees them as equivalent features, as would anyone of ordinary skill in the art. Their equivalence is why the terms used to describe them are used interchangeably in the rejections and the explanations of the rejections.

6. With regards to Applicant's contention that the Examiner has attempted to ignore "accepted terminology" in the art, Examiner sees this as an inaccurate representation of the Examiner's position. Examiner does not disagree that Applicant has used accepted terminology to describe features of the claimed invention, nor has Examiner ignored the terminology. A more accurate representation of the Examiner's position would be that both Hao and Nitescu have also used "accepted terminology" and that although the "accepted terminology" used in the claimed invention and the prior art is different, it is nevertheless equivalent. It is also Examiner's position that the claimed features described by Applicant using this "accepted terminology" are rendered obvious by the prior art (i.e. Hao and Nitescu).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Karla Moore
Primary Examiner
Art Unit 1763

Conferees:

***

GREGORY MILLS
QUALITY ASSURANCE SPECIALIST

PARVIZ HASSANZADEH
SUPERVISORY PATENT EXAMINER